

**What Is Claimed Is:**

1. A method for attaining synchronization in a digital transmission system, comprising:
  - receiving a digital signal carrying transmitted data and a guard period during which no signal is transmitted;
  - determining a signal envelope for the received digital signal;
  - filtering the signal envelope using a matched filter having a span corresponding to the guard period;
  - determining the guard period from the filtered signal envelope to provide a time reference for the received digital signal.
2. The method of claim 1 wherein said step of determining a signal envelope includes sampling the transmitted data and the guard period.
3. The method of claim 1, wherein said step of filtering includes filtering the signal envelope using a filter having a length approximately equal to a pre-determined length for the guard period of the received digital signal.
4. The method of claim 1, wherein said step of determining the guard period includes determining the minimum level of the filtered signal envelope to indicate the center of the guard period.
5. The method of claim 1, wherein the digital transmission system uses orthogonal frequency division multiplexing for transmission.
6. The method of claim 5, wherein the digital transmission system is a wireless communications system and said method is performed by a remote wireless unit.
7. The method of claim 1, wherein said digital signal is received at a signal level weaker than a pre-determined threshold for regular communications service within the digital transmission system.
8. The method of claim 1, wherein the digital transmission system is one of a digital audio broadcasting system or a digital video broadcasting system.

9. An apparatus for attaining synchronization in a digital transmission system, comprising:

a controller programmable to perform the steps of:

determining a signal envelope for a received digital signal, the digital signal carrying transmitted data and a guard period during which no signal is transmitted;

filtering the signal envelope using a matched filter having a span corresponding to the guard period; and

determining the guard period from the filtered signal envelope to provide a time reference for the received digital signal.

10. The apparatus of claim 9, wherein said step of determining a signal envelope includes sampling the transmitted data and the guard period.

11. The apparatus of claim 9, wherein said step of filtering includes filtering the signal envelope using a filter having a length approximately equal to a pre-determined length for the guard period of the received digital signal.

12. The apparatus of claim 9, wherein said step of determining the guard period includes determining the minimum level of the filtered signal envelope to indicate the center of the guard period.

13. The apparatus of claim 9, wherein the digital transmission system uses orthogonal frequency division multiplexing for transmission.

14. The apparatus of claim 13, wherein the digital transmission system is a wireless communications system and said steps are performed by a remote wireless unit.

15. A digital transmission system, comprising:

a transmitter for transmitting a digital signal carrying user data using an RF carrier;

a receiver including:

a controller programmable to perform the steps of:

determining a signal envelope for a received digital signal, the digital signal carrying transmitted data and a guard period during which no signal is transmitted;

determining a signal envelope for the received digital signal;

filtering the signal envelope using a matched filter matched to the guard period; and

determining the guard period from the filtered signal envelope to provide a time reference for the received digital signal.

16. The system of claim 15, wherein said step of determining a signal envelope includes sampling the transmitted data and the guard period.

17. The system of claim 15, wherein said step of filtering includes filtering the signal envelope using a filter having a length approximately equal to a pre-determined length for the guard period of the received digital signal.

18. The method of claim 15, wherein said step of determining the guard period includes determining the minimum level of the filtered signal envelope to indicate the center of the guard period.

19. The system of claim 15, wherein the digital transmission system uses orthogonal frequency division multiplexing for transmission.

20. The system of claim 19, wherein the digital transmission system is a wireless communications system and said steps are performed by a remote wireless unit.